FEB 7 1930

The JOURNAL of GEOGRAPHY

VOLUME XXIX FEBRUARY - 1930 NUMBER 2

PERIODICAL ROOM
GENERAL LIBRARY
UNIV. OF MICH.

In This Issue

Human Occupance of the Lowest Rhineland . . . . . *Derwent Whittlesey*

Maté: An Important Brazilian Product . . . . . C. R. *Cameron*

Report of Columbus Meeting National Council of Geography Teachers . . . . . .

An Interest-Stimulating Device . . . . . .

Editorial Notes and News . . . . . .

Geographical Publications . . . . . .

Published by A. J. NYSTROM & CO., for THE NATIONAL COUNCIL OF GEOGRAPHY TEACHERS
GEORGE J. MILLER, *Editor*

The JOURNAL *of* GEOGRAPHY

A MAGAZINE FOR SCHOOLS

GEORGE J. MILLER, *Editor*

CORA P. SLETTEN, *Assistant Editor*

State Teachers College, Mankato, Minn.

Associate Editors

R. H. WHITBECK, University of Wisconsin, Madison

R. M. BROWN, Rhode Island College of Education, Providence

E. E. LACKEY, University of Nebraska, Lincoln

ERNA GRASSMUCK, State Teachers College, Indiana, Pa.

A. E. PARKINS, George Peabody College for Teachers, Nashville, Tennessee

D. C. RIDGLEY, Clark University, Worcester, Mass.

SUBSCRIPTION TERMS

The subscription price is $2.50 a year, payable in advance. The price of single copies is 35 cents. Postage is prepaid on subscriptions from the United States, Canal Zone, Republic of Panama, Porto Rico, Cuba, Virgin Islands of the United States, Dominican Republic, Philippines, Guam, Samoan Islands, Hawaii, Mexico, Costa Rica, Guatemala, Nicaragua, Republic of Honduras, Salvador, Argentina, Bolivia, Brazil, Colombia, Ecuador, Paraguay, Peru, Uraguay, Spain and Spanish Colonies. Postage is charged extra for Canada and all other countries in the Postal Union as follows: 27 cents on annual subscriptions (total $2.77), on single copies 3 cents (total 38 cents).

The Journal is the official organ of the National Council of Geography Teachers and is sent to all members of the organization. The annual dues, $2.00, are payable to the *Journal of Geography*. Extra postage rates for copies sent to foreign countries should be added to the membership dues.

Patrons are requested to make all remittances payable to the *Journal of Geography*, in postal or express money orders or bank drafts.

Members and subscribers who wish to continue receiving the *Journal* must send remittances promptly to assure the volume being complete.

Send manuscript and books for notice or review to the *Editor*.
Send orders for back numbers to *Journal of Geography*.

Published monthly except June, July and August

PUBLICATION OFFICES: 450-454 AHNAIP STREET, MENASHA, WISCONSIN

Business Correspondence, Membership Dues, and Subscriptions may be sent to Publication office or to

A. J. NYSTROM AND COMPANY
PUBLISHERS, JOURNAL OF GEOGRAPHY
3333 ELSTON AVENUE, CHICAGO

Entered as second-class matter January 15, 1919, at the postoffice of Menasha, Wisconsin, under the Act of March 3, 1879.

GEORGE J. MILLER, *Editor*

THE JOURNAL OF GEOGRAPHY

CONTENTS FOR FEBRUARY, 1930

Human Occupance of the Lowest Rhineland 41
.....**By Derwent Whittlesey**

Dr. Whittlesey is a professor of Geography in Harvard University; joint author of "An Introduction to Economic Geography"; and Editor of the *Annals of the Association of American Geographers.*

This is the second in our series of experimental writings in the field of human geography. The introduction to the series appeared last month.

Maté: An Important Brazilian Product. By C. R. Cameron 54

Mr. Cameron is American Consul at São Paulo, Brazil. Other recent articles in our industrial series appeared in December, 1928, and in October and November, 1929. Others in this series will treat of "The Problem of Wood Pulp and Paper" and commerce of the United States.

Report of Columbus Meeting National Council of Geography Teachers 70

An Interest-Stimulating Device 76

Editorial Notes and News 78

Geographical Publications 80

Contents of the JOURNAL are indexed regularly in the *Educational Index to Periodicals.*

Authors alone are responsible for opinions and statements in the JOURNAL.

Brigham and McFarlane's
Essentials of Geography

THESE books are designed to portray the conditions of the world today, to prepare young people for actual life, and to make them really know something about their own country,—its industries and its trade relations with the rest of the world. They put geography into life and life into geography. Pupils who study *Brigham and McFarlane's Essentials of Geography* get a clear idea of the interdependence of the nations of the world that is invaluable in all their reading and study.

Published in a Two-book Series and a Four-book Series with Special State Supplements. There is also a most helpful Manual for Teachers.

AMERICAN BOOK COMPANY

New York Cincinnati Chicago Boston Atlanta

Please Mention the Journal of Geography in Corresponding with Advertisers

The JOURNAL *of* GEOGRAPHY

Copyright, 1930, The Journal of Geography

VOLUME XXIX FEBRUARY, 1930 NUMBER 2

HUMAN OCCUPANCE OF THE LOWEST RHINELAND

DERWENT WHITTLESEY

Harvard University

THE OUTER RHINELAND AS A WAR ZONE

Northeastward from Cape Gris Nez, the bold headland which marks the Strait of Dover, and reaching well into the peninsula of Jutland lies a strip of Europe which for ages has been in dispute with the North Sea (Fig. 1). Long before man came on to the scene the numerous rivers began dumping their burden of alluvium into the shallow water at their mouths, and during the latest glacial period they found an ally in the rushing waters from the receding icecap, which spread sheets of sand and small gravel over parts of the delta. The incessant nibbling of waves, occasionally reinforced by huge bites taken by storms sweeping onshore from the northwest, might promptly have removed this unconsolidated deposit except for one obstacle. The winds and waves themselves have combined to throw up continuous barriers of sand dunes along

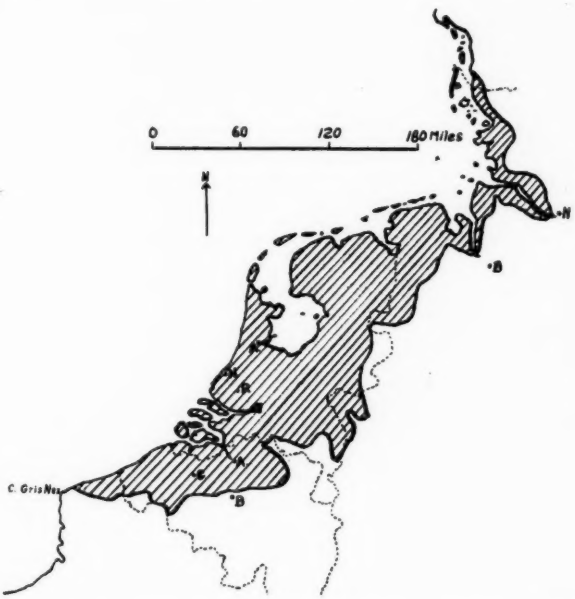


FIG. 1. The river-mouth lowlands (shaded) which border the North Sea coast of continental Europe. Dotted lines indicate national boundaries: the countries or parts of countries shown are, from south to north, France, Belgium, Holland, Germany and Denmark. Initials stand for principal cities. This map should be compared with an atlas map of the same region.

great lengths of the coastline, and these porous hills, which average 30 to 40 feet in height and reach 200 feet at the maximum, defy their creators to make further successful inroads upon the land. Equilibrium between the opposing forces of nature might thus become established, were it not for the gentle heaving of the earth's crust known as diastrophism. Along this coast the crust happens to be subsiding, a movement which gives to the sea a slowly realized but powerful and permanent advantage. Into this warfare of natural

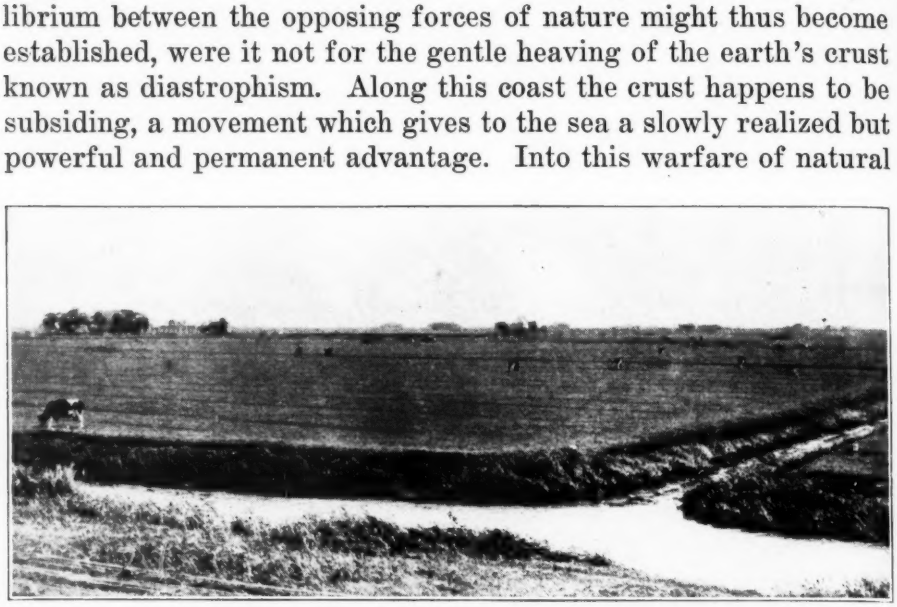


FIG. 2. Holstein cattle grazing on polder pasture, Dutch Friesland. The homesteads, with their windbreaks of trees, are the conspicuous features of the plain. The low windmill in the left middle distance pumps water out of the polders.

forces man has interjected himself, boldly championing the part of his friends the rivers and the dunes, and essaying to hasten the processes of land building.

THE AMPHIBIOUS POLDERLAND

Behind the dunes and between the natural levees which slope downward away from the banks of the major rivers, much of the land lies less than a yard above mean high-tide level, and some is as much as 16-20 feet below the critical line. Since the tidal range is some 8 or 10 feet, the lowest portions are thus well below low-tide level. Some still remains lake or marsh cut thru by sluggish creeks. But most of the streamlets have been confined to artificial channels by dikes, and the countless basins (polders) thus enclosed are farmed. The heavy, wet soil contains abundant humus, but is often peaty and too wet for crops in a climate where the temperature in the warmest month rarely averages 68°F., and where the precipita-

tion in the three summer months may reach 10 inches, with nearly 30 for the annual average. Such lands are therefore often pastured or planted to hay meadow—wide expanses of vivid green, more often than not dotted with dairy cattle, predominantly the black-and-white holstein breed (Fig. 2). On a windy or a wet day, they gather in rows, tails to the wind, patiently but forlornly waiting to be milked. No fence bars further progress, for not a fence is to be seen in this whole level countryside. But there are numerous gates,

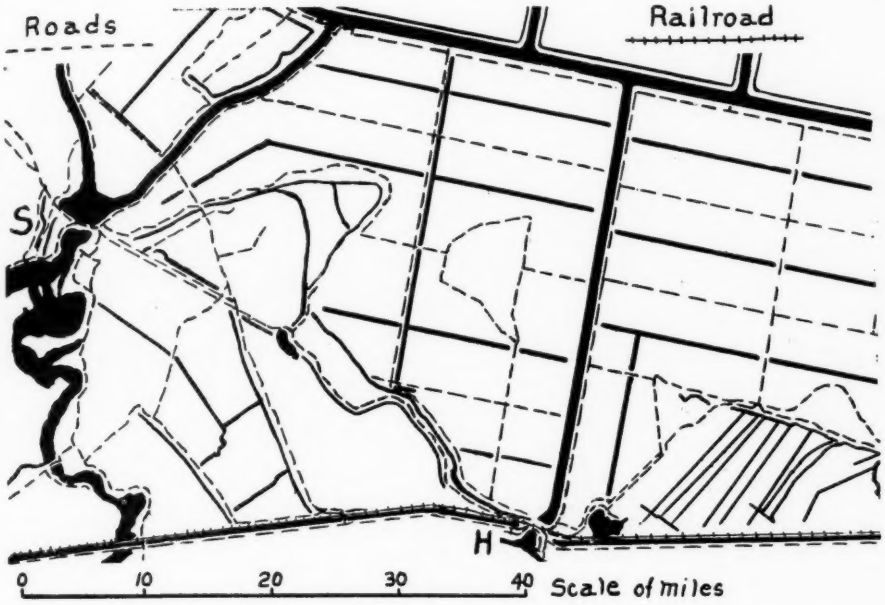


FIG. 3. Polders along the Noord-zee Kanaal, between Zaandam and Haarlem, Netherlands. (Data are derived from the official topographic map of the Netherlands and from the waterways map published by the Toeristenbond voor Nederland.) All land routes lie on dikes. Canals and streams are indicated by solid lines. Breaks in these lines, if crossed by roads, stand for bridges or causeways. The main streams, the very wide canals, and the canal along the railroad form the principal lines of drainage and navigation. In addition to waterways shown, innumerable farm ditches must be imagined as crisscrossing all the polders.

Farm villages lie at the two route foci, marked "S" (Spaandam) and "H" (Halfweg). The Noord-zee Kanaal is the very wide canal along the north margin of the area mapped.

each standing independently on its posts, and these are seen to mark bridges across little canals about a yard wide and a few feet deep. In a land deficient in wood and iron and surfeited with water, property lines and field divisions are thus cheaply made, altho like

all other canals they must be dredged of water plants at intervals—a very large labor in the course of a year. Into even such little ditches no cow will venture, and the rows of waiting animals are always found to be standing nose to a canal.

From these myriad "fences" the water drains into somewhat wider canals which cross the polder or line the dikes that enclose it (Fig. 3). Outside the dikes, and laid out in such a way as to

FIG. 4. Grist mill and farm village at a road bridge across the Bruges Canal, Belgian Flanders. The tree-lined road on the dike, and the water at a level higher than the land of the polder, are typical of the larger canals.

touch at least a corner of every polder, are canals which comprise the public drainage system of the district (Fig. 4). In this circulation water flows from smaller to larger canals and streams, and finally into one of the "Great Rivers," such as the main mouths of the Rhine and the Scheldt, or directly into the North or Zuider seas. Many of the larger canals ride 10 or 20 feet above the countryside in embanked troughs (Fig. 4). If the polder lies above low tide, a gate is fitted into its outlet and during the ebb this gate is opened so that the accumulated water from the polder may flow into the public drainage system. But if the polder lies near or below low tide level its only connection with the outer circulation is made thru a pump. In similar fashion the public drainage canals

are locked off from each other at numerous points, and in all cases the surplus water can be let into the Great Rivers or the Seas only thru locks, since at high tide or flood season these outer waters stand above the level of the canal system.

In these flat lands of wide horizons, windmills can be relied upon in the smaller polders to keep the water table below the surface (Fig. 2). In open country such a mill need not stand more than

FIG 5. Sawmill on the outskirts of Leiden, Netherlands. The canal is a branch of the navigation canal system. The macadam bicycle path is shared by pedestrians; the rough brick pavement is for other traffic.

15 feet above the dike which it straddles, but if, as often happens, trees are planted on the dikes for firewood and to aid in stabilizing the earth of which these artificial ridges are made, the mill may need to tower 30 or 40 feet to the hub of the wheel. Nowadays, however, altho the wind still blows and the water still accumulates, windmills are fast disappearing, to be replaced by more efficient and less troublesome, but also more expensive and less picturesque gas engines, installed in inconspicuous little shelters. The same motive force is replacing the windmills which formerly ground the grain and sawed the lumber of this region of no water power and little coal (Figs. 4 and 5).

Reclamation of polderland has always been dependent on the source of power. So long as the wind alone could be utilized, no large or deep lakes could be drained. The advent of steam permitted and even encouraged the undertaking of larger projects than had hitherto been attempted, such as the drainage about 1850 of the Haarlemer Meer in Holland, 72 square miles in extent. The electric pump has emboldened the Dutch to an even more audacious undertaking—nothing less than the reclamation of the Zuider Zee (South Sea), a salt-water inlet on the site of a fresh-water lake which was captured by the sea in great storms of the 13th century. Altho rarely more than 15 feet deep, this gulf occupies 1378 square miles.

The widest stretches of polder used for pasture and meadow naturally lie on the lowest, and hence the wettest lands. These occupy either side of the mouth of the Zuider Zee, including the islands off the Rhine mouths. Elsewhere in Holland, and generally in Belgian and French Flanders, tilled crops commonly occupy polderland—sugarbeets, rye, flax, and vegetables. When the crop is harvested, however, cattle are generally turned into the stubble. Everywhere the abundant rainfall and the high water table encourage the rapid growth of grassy vegetation, so that a harvested field looks green again while the shocks of grain are still standing in it. Moreover the winters are so mild that cattle are turned out to graze the year round. (The average is above freezing for the coldest month except in the extreme northeast.)

The canal system which drains the polderlands of water, also provides for the circulation of goods. Farm villages always lie on navigable water (Figs. 3 and 4), and the cities of the polder stand at important canal confluences. Roads very generally occupy the broad crests of the larger dikes, and so merely form supplementary routes, parallel to the navigable canals. If the few railroads have in places constructed their own embankments, it is only to establish shortcuts between the major cities.

THE DRY BUT NOT VERY HIGH LANDS

So important is water navigation that the canal net penetrates even the land which needs no diking and draining. Generally these undiked lands are drier because they stand above high tide level and because their composition is largely sandy or loessial. The most extensive of these lands are areas of glacial outwash. These

rise in places to 300 feet but the general level is less than 100 feet. Generally they are so infertile that farming is possible only with extravagant use of fertilizers. In Belgium many of these wastes have been so fertilized as to be permanently productive, but very often they are still occupied by coniferous forest, used as a source of gatebars, fuel, and even lumber. Such districts stand out sharply on the low horizon as black or very dark green masses.

FIG. 6. The crush of boats in the little port of Delft, Netherlands.

The Rotterdam canal boat in the foreground is being steered thru an open drawbridge. The family kitchen is the open shed just at the end of the cleated walk.

Along the farther bank at the extreme right of the photograph is a boat piled high with cauliflower.

Where they are near cities, as is a bit of outwash some 15 miles southeast of Amsterdam, these low, well-drained hills become public reserves or sites for suburban homes of a people surfeited with water and treeless expanses.

The seafront dunes have long been significantly linked with human occupance in the low countries, altho they exist only discontinuously north and east of the Zuider Zee. Along the whole line fishing villages early snuggled into coves which could serve as harbors. More recently a number of these have become nuclei of

resort towns, each with a long paved front street, below which, on the beach, are pavilions, and in summer bathing machines and tents, and above which, on the dune ridge, stands the varied panoply of the typical continental resort—casino, cafés, hotels, boarding houses, villas. In these populous spots whole dunes may be paved with cobbles to anchor them; elsewhere plantings of grasses or conifers are carefully maintained to prevent the sand from

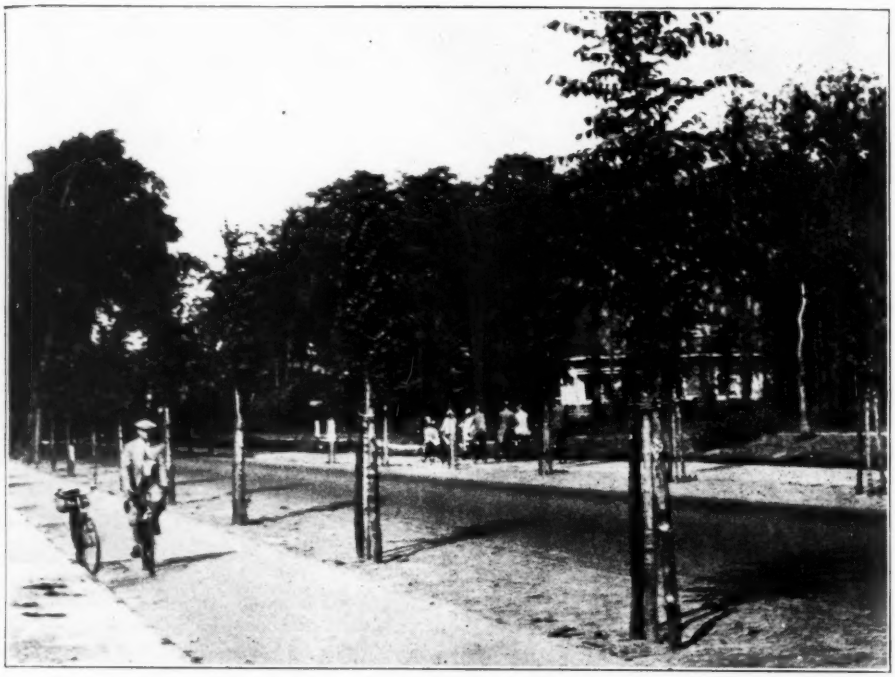


FIG. 7. The highroad along the inner margin of the dunes, south of Haarlem, Netherlands. In addition to the main roadway there are two wide concrete bicycle paths and two sidewalks. All these run thru the countryside, but are often reduced to a single narrow road in towns. The preponderance of bicycle traffic shown here is characteristic of all the Lowest Rhineland.

creeping inland. All the major cities of the whole region, as well as small places nearby, obtain their drinking water from the dunes, which serve as sponges. Oddly enough, in this land of excess water, a healthful supply sufficient for a large urban center is obtainable only from these filters provided by nature. The inner margin of the dunes, rolling and dry, is marked by the principal highroad of the region and an almost unbroken chain of settlement, either villages or estates (Fig. 7).

Immediately behind the dunes is a narrow belt where farming has become highly specialized. There drifting sand has mingled with polder clay to form a soil whose magical productivity has been enshrined in its name *geestgrund,* i.e. spirit soil. High enough and dry enough to need no draining, canals have nevertheless been run in to serve as ways of communication, and among their chief burdens are clay and sand with which the farmers make more of the precious geestgrund. For here the soil is literally created by man. Preparation of the ground consists of mixing just the right quantity of sand, clay, and fertilizer, and spading each foot of surface three times—to a total depth of some thirty inches. Thus prepared, it will grow vegetables and flowers to perfection. The bulbous plants for which the Dutch have long been famous the world over are the best-known products of this zone, but the teeming population of Holland proper, Belgium, and adjacent France owes much to the vegetables which flow from it cityward in a stream of high-piled canal boats thruout the long growing season (Fig. 6). It is not accident that Dutch and Flemings in the United States often develop market gardens. Beyond the glacial deposits, which extend to a line just south of the Zuider Zee, some stretches of wind-laid deposits provide the fertile foundation for the wheat and other cereals of Belgian and French Flanders.

Aqueous Arteries and Urban Ganglia—Lifeblood and Nerve Centers of the Region

Some of the more striking results of man's alliance with the streams in an effort to increase the land area have now been described; but the mainspring of his strenuous and unrelaxing labor and vigilance is to be found in the streams themselves, rather than in the land they traverse. For these fluvial children and neighbors of Father Rhine lead from the most richly endowed basins of Continental Europe to the principal world-focus of sea trade, and the profits to be derived from making contact between sea and land are the heritage of the strip of watery earth between. Water navigation is here to be seen in its fullest development—majestic ocean liners, sturdy tramp freighters, tankers, slender coasting steamers, seaworthy sailing vessels, great barges in tow, snubnosed canal boats of every size, with sails and without, boats propelled by wind, steam, gasoline, or man—all these jostle each other in the congested tidal docks of every great port of the region.

The cities sprung from these port activities sprawl along miles of stream front and along still more miles of canals leading to other distributaries of the mighty deltaic rivers that nourish them. Surrounded like the polders by diked canals, they are shot thru with navigable waterways which serve as their streets for heavy trucking (Figs. 6 and 8). It is said that in Amsterdam only the site of the "Old Church" was originally above water—all the rest being built on piles. With their foundations in sodden silt, high buildings are out of the question. Whole streets of two- to four-story houses which manifestly have received the burnished upkeep known only in the Low Countries, nevertheless stand drunkenly at rakish angles, attesting the insecurity of their deltaic support, where every lowering of the water table causes the dried ends of the piling to rot. The more aspiring church towers bear evidence in their bulging sides and subsequently added buttresses of the inadequacy of brick (the only readily available material) for large structures on soft foundations.

Even when once built at such pains, no city may be sure of fidelity in the inconstant stream which brought it into existence. Bruges is a classic example of an ancient port of the first class which has seen commerce desert as coastal currents silted up canal mouths and the size of ships outgrew any canal which could profitably be constructed. Delft and other towns with ancient prestige have saved a modicum of their trade by entering into reciprocal relations with some nearby port, but Antwerp, Rotterdam, and Amsterdam have succeeded to practically all the overseas commerce of the region. Antwerp, the leading port in tonnage in continental Europe, has maintained itself by constructing enormous docks which permit boats to load and unload without interference from the marked tidal variation of the Scheldt. Rotterdam, now the third port on the continent, has gained that position only thru deepening the Nieuwe Maas for a distance of 7 miles, constructing a new canal (Nieuwe Waterway) 12 more miles to the sea, and creating an artificial harbor on the Hook of Holland (1869-90). Amsterdam, once the chief mart of the region, in the 19th century found itself facing the shallow Zuider Zee and debarred from the North Sea by dunes as well as by distance. Construction (in 1865-76) of the 15-mile-long Noord-zee Kanaal, with tremendous locks thru the dunes at Ijmuiden, brings world trade once more to Amsterdam's front door, but by a rear gate.

The urbanization instigated by commerce has been dilated by

manufacturing, until the whole zone from French Flanders to the Zuider Zee is thickly strewn with cities, and close-built in the country. Even short-radius movements of such teeming population make much traffic. Since pavements have a way of slipping into the soft earth, roads are generally built narrow to reduce cost and have become rough with settling. All are bordered with footpaths which the pedestrian shares with streams of bicycle riders

FIG. 8. Poling a barge laden with rubbish under a fixed bridge in Amsterdam. This is one of the principal confluences in the city, but land traffic takes precedence over movement by waterway in all the larger cities, except in the ports proper. The high-arched bridge to permit the passage of boats with deck cargoes is typical.

(Fig. 5), except along main highways, where special concrete bicycle ways have been constructed for that vehicle (Fig. 7), so utile in a flat region, and cheap enough for poor people to own. The flatness has likewise permitted the use of dogs to pull loaded carts, both in the cities and over the short hauls between towns. With a man or a boy to start, stop, and steer, one or two or three work dogs can manage all except the heaviest trucking required by a modern city.

Most of the traffic in large units, and much of the transportation

of individual heavy articles is handled, not by railroad or by motor truck, but by canal boat. Sails or smokestacks drifting across what has the appearance of terra firma betray the presence of navigable canals on every hand. In town, these craft may either demand that the innumerable bridges be lifted, for which they must pay toll in proportion to their tonnage, or they may dip their masts or stacks. In the largest cities, where street traffic has come to take precedence

FIG. 9. The principal canal of Leeuwarden, Dutch Friesland, showing a corner of the public square and the headquarters of the board of navigation for the district.

No boats can use sails within cities because of traffic on the canals, numerous bridges over them, and frequent turnings which necessitate changes in direction. When being poled the lee boards necessary in sailing flatbottomed scows are drawn up out of the water.

The family (on the deck of the boat in the foreground) lives in a cabin below decks near the stern. The inevitable dog does not appear in this picture.

over water movement, bridges are fixed, and the local boats are either poled by hand or propelled by gas engines (Figs. 8 and 9); rarely does a sailer venture beyond the port section.

THE TEMPO OF HUMAN AFFAIRS AND DELTAIC STREAMS

Thruout the region life is geared to the snail's pace of water navigation. A considerable population (the families of all those engaged in canal traffic) makes its homes on canal boats (Figs. 6

and 9). The husband serves as the tow mule or walks ceaselessly from stem to stern leaning on the long pole, while the wife steers, cooking the meals on a stove placed handily just out of reach of the tiller's sweep. Even when there are sails or a motor, this water traffic is slow, and subject to long waits at bridges (most of which are hand-operated), to protracted maneuvering into and out of locks, and to traffic jams at port entrances. The farer on land can go little faster. He is likely to walk, perhaps helping his dogs to haul a cart; but even if he has a bicycle or that rare object, an automobile, he must spend many a ten-minutes waiting for a boat to pass an open bridge. Streams of traffic on the main arteries outside the larger cities dammed at an open draw, often have to await a stately procession of half a dozen ponderous boats. Since the cost of bridges operates against multiplying them, the landsman must often make a long detour to reach a point a stone's throw away (Fig. 3). It is not surprising that good-tempered patience of a sober and tenacious sort characterizes a people who have made terms with the sluggish but capricious streams on which their prosperity depends, and who are forever at the task of regaining land at the expense of the avaricious sea, fragment by fragment in the long course of centuries.

MATÉ: AN IMPORTANT BRAZILIAN PRODUCT[1]

C. R. CAMERON
American Consul, Sao Paulo, Brazil

Maté is the name given to the dried leaves of a genus of trees related to holly scattered widely thruout South America, the best species being found in the Parana River Valley. From them is prepared an infusion similar to that made from the ordinary tea of China, depending for its stimulating effect, indeed, upon the same organic compound. Recently an active maté propaganda has been undertaken and the product is being introduced into the United States, where it comes into direct competition with ordinary tea. [The number of South Americans using maté is estimated at from 10,000,000 to 15,000,000.]

The following table shows the comparative importance of maté as an export from Brazil as a whole for the past five years:

Principal Brazilian exports in order of value, 1924-1928

Order of value	1924	1925	1926	1927	1928
1	Coffee	Coffee	Coffee	Coffee	Coffee
2	Hides	Rubber	Rubber	Cacao	Hides
3	Oil seeds	Cotton	Maté	Hides	Cacao
4	Cacao	Hides	Cacao	Rubber	Maté
5	Meat	Maté	Hides	Maté	Meat
6	Maté	Cacao	Oil seeds	Tobacco	Oil seeds

Brazil has not yet developed commercial plantations of maté, practically all maté there produced being as yet obtained from the groves of trees occurring naturally in its territory. The country still has great reserves of maté forests. In 1925 the number of maté trees in the State of Parana was estimated at between 25,000,000 and 50,000,000, whereas Matto Grosso has maté forests *(hervaes)* occupying 4,653,000 acres in the southeast, and unknown areas of inferior quality further north. This area of 4,653,000 acres is, naturally, not wholly covered with maté trees, but is the area of *hervaes* rented by the State. The Argentine Territory of Misiones, however, is making every effort to develop its plantation maté. From the very beginning of South American history Brazilian maté has been sent to market via the River Plate.

[1] Abstracted, by permission, from an article in the *Bulletin of the Pan American Union*, Oct., 1929.—EDITOR

There are in Brazil about 60 species, and it was a long time before the best species of maté was determined, since about 20 species serve

FIG. 1. MAP OF A PORTION OF SOUTH AMERICA, THE SHADED SECTION BEING THE AREA COMMERCIALLY IMPORTANT IN MATÉ PRODUCTION

Maté of some variety is found thruout the greater part of South America, but commercially important forests occur only in Southern Matto Grosso, central and western Paraná, western Santa Catharina, and northwestern Rio Grande do Sul, all in Brazil; in eastern Paraguay; and in the Territory of Misiones and the northern part of the Province of Corrientes, Argentina.

more or less satisfactorily for the beverage. However, it is now generally recognized that the species known as *Ilex Paraguariensis* (sometimes written *Ilex Paraguayensis*) is the most suitable for

making the infusion, the term *congonha* being reserved for other species, now considered undesirable.

Species of *Ilex* are widely distributed thruout the South American Continent, from Colombia to Argentina. *Ilex Paraguariensis* is found in the basin of the River Plate drainage system, from 18° south (Bolivia and Matto Grosso, Brazil), to about 30° south (northern Uruguay and Corrientes Province, Argentina), with occasional occurrences on the Atlantic seaboard. The present important commercial forests of *Ilex Paraguariensis,* however, are found in southern Matto Grosso, central and western Parana, western Santa Catharina, and northwestern Rio Grande do Sul, all in Brazil; and in eastern Paraguay, beginning about 60 miles east of the river of the same name. The maté from the Territory of Misiones, Argentina, now comes mostly from the plantations. The maté tree is not usually found along the great rivers within a belt which may vary from 10 to 30 miles wide, but prefers depressions in the foothills and mountains, relatively humid, and an altitude of from 1,500 to 2,500 feet above sea level.

The opinions as to the good qualities of maté held by many persons who have investigated the product undoubtedly bespeak for maté a favorable consideration on the part of the consumers of ordinary tea. Indeed, maté resembles tea very closely in its chemical content, in the method of preparing the beverage, and in the latter's gently stimulating effect upon the system. A comparatively greater quantity of maté leaves is used, however, than would be required of tea leaves for ordinary tea, a soup spoon of the maté leaves being usually employed for each cup of the beverage. However, if the leaves are finely broken the quantity required is less. It is useful to append here a table prepared by Gustav Peckolt showing the general average of important chemical constituents of green tea, black tea, coffee, and maté.

Principal chemical constituents of green and black tea, coffee, and maté, in grams per thousand

	Green tea *Grams*	Black tea *Grams*	Coffee *Grams*	Maté *Grams*
Essential oil	7.900	6.000	0.410	0.010
Chlorophyll	22.200	18.140	13.660	62.000
Resins	22.200	36.400	13.660	20.690
Tannic substances	178.000	128.800	16.390	12.280
Theine or caffeine	4.300	4.600	2.660	2.510
Ashes	85.600	54.400	25.610	38.110
Water, cellulose, etc	175.800	283.200	174.830	180.000

In commenting on this table, Gustav Peckolt states that tea, coffee, and maté are quite similar in their chemical properties, maté most resembling coffee. He adds that from the chemical point of view the alkaloid found in maté is absolutely identical with that found in coffee, tea, guaraná, and kola.

HARVEST AND PREPARATION OF MATÉ

For China tea only the tender leaves and buds are used, whereas for maté the fully developed leaf is preferred. Both the health of

Courtesy of C. R. Cameron

FIG. 2. HARVESTING MATÉ

The grove in the illustration is a cultivated forest; that is, a natural grove with the underbrush kept down and often under pasture.

the tree and the quality of the maté therefore demand that cutting should be limited to the annual period of repose during the fall and winter; that is, to the six months from May to October. Leaves cut during these months contain in their maximum development the substances which give to the maté beverage its flavor, aroma, and other desirable qualities. The time of gathering maté from the public forests is now limited by law in both Paraná and Santa Catharina to the period from May to October and in Matto Grosso from January to September, altho extended by contract with the principal renter of its maté forests to the whole year, excepting the flowering season.

It has been proven in Parana that if the pruning or cutting, which constitutes the harvest, be carefully done, it may be repeated at intervals of three years without permanent injury to the tree. In Misiones, Argentina, trees are cut each year, each two years, or each three years, in such a manner as to avoid injuring the tree, the aggregate returns being the same, whichever of the three methods is adopted. The triennial cutting, however, is thought to produce a superior grade of maté. Maté groves at Fazenda Rosas in Sao Matheus, Parana, have been subjected to a triennial cutting for the past 50 years, without apparent damage.

A gang of *tarefeiros,* as the maté gatherers are called, engaged under the leadership of a foreman, explores the forests until a *mancha,* or stand, of maté trees is discovered. The stand is also called *mina,* or mine, and the maté gathers, *mineiros,* or miners. Since the maté is so frequently associated with the Parana pine, these towering sentinels of the forest are a welcome sight to the scouts cutting their way painfully thru the heavy undergrowth. Once the stand of maté is located on public land, the necessary license is obtained from the local State authorities and a camp is established, which will sometimes serve as headquarters for several months while the near-by maté forest is harvested.

For the operation of cutting, the maté gatherer first cleans the tree of creepers and vines; then, ascending the trunk, he cuts off the smaller branches. Sometimes ladders or stepladders are used, especially in the privately owned groves. The cutting (*corte,* also called *poda, pruning*) is effected by means of a heavy knife or sickle, the stroke being delivered upward and outward. This produces on the severed branch a cut which is more or less protected from frost, rain, and the direct rays of the sun. The small leaf-bearing branches only should be cut, but it is easier to sever the branches near the trunk, and the longer stems furthermore, are useful in the process of toasting. The temptation is, therefore, to cut off the larger branches and so permanently injure the tree.

To effect the *sapeco,* or toasting, a fire is built of wood which is preferably free from resin and oil, since the smoke from these substances would injuriously affect the leaves. Close on one side of this fire, in order to protect the operator at least partially from the heat, is built a barrier of logs a few feet high (Fig. 3). To effect the toasting the operator stands behind the barrier, grasps the butt of the branches, and extends their leafy ends over the barrier, sub-

Courtesy of C. R. Cameron

FIG. 3. TOASTING THE MATÉ LEAVES

Courtesy of C. R. Cameron

FIG. 4. BREAKING TWIGS FROM BRANCHES OF MATÉ

jecting the green leaves to the direct action of the fire for a few seconds. The branches are continually turned over so as to permit the fire to act upon all the leaves uniformly, toasting but not burning them. The nature of this operation explains why the maté gatherers prefer to cut long branches. Properly toasted leaves preserve their green color even after they are completely dried. During the process of toasting the fresh leaves lose about one-third of their weight.

The short leaf-bearing branches are now broken off the longer branches which were of service only in the toasting, this process being known as *quebramento, or breaking.* The small branches, still bearing the toasted leaves, are then gathered into sheaves and transported to the place of drying, where, in the case of laborers doing piecework, the toasted and broken product is weighed. A day's labor is about 132 pounds. (Figs. 5 and 6)

When the drying takes place in the forest, as is usually the case in Brazil, the apparatus must necessarily be simple and constructed from the materials at hand, there being two principal systems of drying in vogue in Parana. The more primitive method utilizes the *carijó,* which is a platform of poles supported about 6½ feet above the ground on crotched sticks and protected by a roofing of some kind, usually of slabs, bamboo, and palm leaves, or canvas. Upon this platform the sheaves of broken maté are set close to one another, the leafy ends uppermost, and the bands loosened so as to permit the free penetration of the hot air. Fires are then built on the ground below in round holes 20 inches apart and watched carefully so as not to burn or singe the maté until the process is completed, usually in 12 or 24 hours. The fire should, of course, be as nearly smokeless as possible, and firewood producing much smoke or disagreeable odors is avoided. Under the best of conditions, however, maté dried in the *carijó* is discolored and smells of smoke. When the leaves are completely dried the maté is removed to a place nearby known as the *cancha,* where the leaves are broken off.

The method of drying which utilizes the *barbacuá,* however, produces a better product and is rapidly succeeding the old *carijó* system, especially in the forests under private control where a permanent establishment for curing maté is advantageous. The *barbacuá* in its original form was the *tatuapê* of Paraguay, from which country it was adopted, and consists merely of a low dome made by planting poles in the ground and bending them over, or by arch-

ing poles over a low inclosure of any material, the whole being roofed as in the case of the *carijó*. The loose branches of the broken maté are then placed upon the top and sides of this dome-shaped structure so as to cover it completely and retain the hot air, conducted to the center of the *barbacuá* thru a subterranean canal from the fire built below and some distance away. During the drying process, in order to assure uniform desiccation, the branches of maté are turned over by means of a long pole wielded by a workman perched on top who is known as the *uru* (literally, woodcock). From 5 to 15 hours are required to complete the process. The *barbacuá* produces more uniform and economical drying, eliminates the fire danger, and avoids smoking the maté as much as in the *carijó*.

The term *barbacuá* is also applied to the most modern establishments in which the lower part of the inclosure is frequently built of brick or tile and the upper part of boards. Sometimes the broken maté is placed on a sort of truck which is moved into the *barbacuá* for desiccation and thence to the *cancha* when the drying is completed, thus avoiding handling and the heavy loss of leaves thereby entailed. Still more modern installations have in some instances been constructed in which the whole process of toasting and drying is effected in the same apparatus by exposing the leaves first for a few seconds to a temperature of about 800° C. (1472° F.), which is then reduced to 100° C. (212° F.), for the drying process. However, this ultra modern method has not yet been perfected in Brazil, and almost all the maté in the Brazilian market to-day is still subjected to the process of *sapeco* and dried in the *barbacuá* or some of its modifications.

The next process is threshing, separating the dried leaves from the twigs to which they still cling. This was originally effected by the process of *malhação*, or beating. It consists merely in placing the thoroly dried product from the *barbacuá* on a *cancha*, or threshing floor, and beating it until the leaves were broken off. The *cancha* used among the Indians was simply the ground tramped and beaten hard, or the place which had been occupied by the fire, but later, in the interests of hygiene, the *cancha* was floored with a rawhide, with a canvas, or with planks. The beating is effected by heavy sticks with one sharp outer edge, thereby more efficiently separating the leaves. When the operation is finished the bare branches are removed, leaving a mass of broken leaves of all sizes mixed with twigs, bark, etc., called maté *cancheada*.

Courtesy of C. R. Cameron

FIG. 5. WEIGHING A SHEAF OF MATÉ

Courtesy of C. R. Cameron

FIG. 6. MATÉ ON THE WAY TO BARBACUA

However, the modern method of removing the dry leaves from the branches is by a mechanical threshing known as *trituração,* or trituration. A circular *cancha* is constructed with a floor surrounded by a low parapet. To a rotating post in the center is attached the small end of a conical roller in which are set wide wooden teeth. The roller in turn is affixed to a sweep to the end of which is hitched a draft animal. As the animal moves around the *cancha* the roller operates upon the mass of leaves and branches placed on the floor, breaking off the leaves and small twigs. Sometimes the floor of the modern *cancha* is a grate thru which pass the leaves as they are broken off, falling into a suitable receptacle prepared underneath, and occasionally the motive power is supplied by steam or water.

When the threshing process, either by beating or trituration, is finished the bare branches are removed and the remaining mass of broken leaves, twigs, etc., the maté *cancheada,* may be used to make the beverage, and indeed, was originally so used without further preparation. However, the residue is composed of fragments of leaves of all sizes from dust up to pieces an inch or more in length, and, further, almost invariably contains numerous impurities such as sticks, charred leaves and wood, dust, etc. It is therefore usually subjected to a sifting process called *peneiração,* first with a coarse sieve or *peneira* of bamboo to remove the larger objects, and then with a fine sieve to remove the minute particles and dust. . . . .

The crude maté improves much in aroma and flavor by aging for a few months. Formerly maté from the *cancha* was often sewed up as tightly as possible in freshly skinned hides which, drying and contracting, pressed the maté still more tightly together. In these containers it remained undergoing the seasoning process until it reached its destination and was consumed many months later. During recent years the seasoning process has apparently been much neglected in the case of Brazilian maté. The crude maté is placed in the deposit (called *noque*) erected near the *cancha,* consisting of a receptacle usually made of closely woven split bamboo on a platform of logs about 18 or 20 inches above the ground, here to await sacking and transportation. In this receptacle, however, the maté should be well packed down and allowed to cure. It must, moreover, be carefully protected from the dampness, for maté readily absorbs water and moulds easily, but on the other hand, the receptacle must not be air-tight, for apparently a certain amount of air circulation

is necessary for the proper seasoning. In Argentina it is recommended to let the maté season for six months in the deposit.

From this deposit the crude product is put in sacks of from 66 to 132 pounds and transported to the factories (*engenos* or *usinhas*) either in Brazil or Argentina, where it is prepared for consumption.

Maté *cancheada* was originally used for the infusion of the beverage, as has been said, but since commerce has long demanded a refined product, it is subjected to various further processes in factories now located, for the State of Paraná, principally at Curityba, the crude maté of Matto Grosso being almost all shipped to Argentina for preparation. As it absorbs moisture readily, it must be redessicated when it reaches the factory in order to make it proof against mould. For this purpose, moreover, smoke may be used for the purpose of imparting any desired flavor, and the further heating is said to make the principles of the maté more active. It is also carefully sieved and passed thru blowers, etc., in order to further purify it and separate it into grades as to size. For some grades it is ground fine, and if the maté be pure this is an advantage, since the essences are thereby more readily extracted in the brewing process.

The manufacturing process, usually called *beneficiamento,* also involves blending, since the flavor and aroma vary in accordance with methods of toasting, drying, aging, etc., or according as it has come from the forest, from semicultivated trees, or from the plantations. Moreover, different geographical areas, as Misiones, Matto Grosso, Paraná, etc., produce distinctive qualities of maté. Argentina grants a lower rate of duty to crude maté, preferring that Brazilian maté be imported in that condition not only to make detection of impurities easier but to protect the Argentine manufacturing industry, and furnish it with forest maté with the milder plantation product. Brands of maté are quite as significant as brands of coffee.

THE PLANTING OF MATÉ

Altho the planting of maté was successfully undertaken by the Jesuits during the seventeenth and eighteenth centuries in the Brazilian State of Paraná, in the Territory of Misiones, Argentina, and in Paraguay, the practice was apparently given up with their expulsion. In 1820 the Frenchman Bompland again began planting in Santa Ana, Misiones, but was interrupted by political disturbances,

and it is only since 1903 that maté cultivation has been carried on methodically in Misiones, where it now forms the principal industry. Some maté has also been planted in the Province of Corrientes, Argentina, just south of Misiones, and in Paraguay. In 1927 about 3,000,000 maté trees had been planted in Corrientes and in 1925 there were about 4,000,000 planted trees in Paraguay. As yet, however, maté planting is carried on only in a very small way in Brazil. The number of trees planted in Misiones at the end of 1928 was 22,785,855, covering about 56,800 acres and producing during the year 1928 about 39,270,000 pounds of maté.

One of the great difficulties in maté planting is to obtain seedlings. The seeds, being inclosed with a gelatinous covering and a stout epidermis, sprout very slowly, and it was thought for a long time that they would germinate only after they had passed thru the stomach of birds. The seeds, the size of a grain of black pepper, ripen in February or March. They are gathered as they become ripe, well soaked in water, crushed either with fingers or on a flat surface with a rolling-pin, and then washed thoroly on a fine sieve and dried in the shade. In Brazil maté germination and planting has been attempted only in an experimental way in the vicinity of Curityba, and also in Santa Cruz, Rio Grande do Sul, and in Iguape, Sao Paulo. A modern method of sprouting seed is to fill a box with successive layers of earth upon each of which seeds are scattered, the whole being well watered for seven or eight months. The box is then emptied out and the seeds separated and planted; they sprout in about a month. However, the seeds may be planted directly in seed beds, and this is apparently the accepted method in Argentina. Being so scattered on a very finely pulverized seed bed, they are covered with 2 or 3 centimeters of earth, packed down with a board, and irrigated with a sprinkler at least once a day, and oftener in dry weather, for nine months. If planted in March, the germination should be general in September and some seeds will continue to sprout until December.

Various methods, some involving the use of chemicals, have been employed in an endeavor to remove or soften the outer covering of the seeds and so hasten germination.

The young plants which have just sprouted in the seed beds must be carefully shaded, preferably by an arbor covering the bed, and when they have about six leaves they are transplanted to an-

other nursery bed, also shaded, being placed some 4 to 12 inches apart according to different authorities. However, the young plants may instead at the first transplanting be placed in little wicker baskets called *jacoazinhos,* employed also for coffee plants under similar circumstances. In any case, when the plants have attained a height of from 12 to 20 inches, they may be placed in their final position in the field. The more advanced plants which have been transplanted into baskets or the second bed up to the first of December may be set out in the field in the following May or June; that is, 15 or 16 months after the seed was planted. But it is recommended in Argentina that plants remain 18 months in the second bed. Opinion differs as to the proper distance between the trees in the field, varying at present from 6½ feet in a row with 13 feet between rows to 13 by 13 feet. The richer the soil the greater distance between the trees.

In Brazil, in lieu of regular plantations as described above, the practice has grown up of merely assisting nature in the forming of maté forests. A suitable area on private land, preferably already having some maté trees and sprinkled with Parana pine which the maté so often accompanies in nature, is selected and cleared of everything except maté and pine. Within a few years, thru the action of the birds which scatter the seeds, maté seedlings appear. Sometimes the process is hastened by the planting of young trees in the vacant places. The forests are, of course, quite irregular and so do not lend themselves to cultivation. Usually, however, the brush is cut until grass covers the ground and the area is then kept clear thru use as a pasture. This process is also applied with success to those maté forests which are becoming extinct thru age or excess of pruning.

The young trees are pruned every year. Altho the leaves cut off are saved, up to the third and preferably up to the fourth year the pruning is only for the purpose of causing the tree to grow in the proper form. During the fourth year it is the Argentine practice to harvest the tree, cutting off 70 to 80 per cent of the leaves, which produce about a pound of dried maté. From that time on the tree may be harvested every year, every second year, or every third year, the total production during a 3-year period being about the same in any case. The leaves should be cut just before the heavy frost; that is, in May, since the leaves have then reached their full

size and maturity, and, altho the tree is an evergreen, the frosts would cause a certain number of leaves to fall and so be lost to the harvest.

The processes employed for the preparation of maté on the plantations are essentially the same as those already described as in use in the Paraná maté forests. In Misiones, however, the employment of machinery is more common, and the toasting is regularly

Courtesy of C. R. Cameron

FIG. 7. A WAGON TRAIN CONVEYING SACKED MATÉ TO A SHIPPING POINT

done by means of a wire cylinder rotating over a flame. Apparently, moreover, more attention is paid to aging or seasoning the crude maté before placing it on the market.

Due to the conditions of its preparation, plantation maté is probably cleaner and of more uniform grade than the forest product. There is much discussion as to what maté has the best aroma and taste, and it is undoubtedly true that the forest maté, like most wild products, has an aroma and taste different from those of the cultivated maté. Undoubtedly, also, these qualities are greatly influenced by the flame and smoke employed in toasting and drying maté. Moreover, the manner of applying these agents varies greatly. The advocates of forest maté claim that its qualities make

it distinctly superior, and undoubtedly a large part of the maté-consuming population, accustomed to its flavor, is inclined to admit the claim. But the maté planters reply that even if the plantation maté is *different* it is not necessarily *inferior,* and that with time the maté drinkers will learn to like the plantation maté. At present, however, forest maté is regularly mixed with Argentine plantation maté in order to produce a blend the qualities of which will resemble those of the forest product.

The wild *Ilex Paraguariensis* tree of the forest sometimes reaches a height of 50 or 60 feet, with a correspondingly extensive leaf development so that one will sometimes produce 66 or 88 pounds of dry leaves. Ordinarily, however, the production per tree is much less, altho the average of forest trees is difficult to calculate owing to their great diversity of size, age, conditions, and development. Eighty-eight pounds of manufactured maté seems to be a maximum triennial production for forest maté trees altho a third of that amount is more common. The forest trees of Matto Grosso are said to run from 11 to 33 pounds at each cutting. In Misiones the planted trees of 10 years of age are estimated to produce 13 pounds per annum and to continue to increase their production as they grow older. However, the actual census of all maté production in Argentina, taken in 1928, showed that in 1927 1,566,023 planted trees in that country of more than 10 years of age produced at the rate of 7.7 pounds each.

COMMERCE

Brazil, Argentina, and Paraguay are the only countries producing maté on a commercial scale, and, on account of the heavy consumption in Argentina, only Brazil and Paraguay export the product in important quantities. In round numbers, Brazil produces annually 200,000 tons, exporting about 40 per cent to Argentina, Uruguay, and Chile. Argentina produces annually about 20,000 tons and imports about 100,000 tons from Brazil and Paraguay; Paraguay produces annually 12,000 or 15,000 tons, exporting rather more than half to Argentina.

For the purposes of reckoning the production of maté in Brazil, four States in all are considered, namely, Parana, Santa Catharina, Rio Grande do Sul, and Matto Grosso. There is, of course, a certain amount of maté produced in other States, such as Sao Paulo and Minas Geraes, but it is only in a very limited degree and for local consumption.

Production of maté in Brazil, by States

Agricultural year	Parana	Santa Catharina	Rio Grande do Sul	Matto Grosso	Total
	Metric tons	*Metric tons*	*Metric tons*	*Metric tons*	*Metric tons*
1920-21	62,000	15,000	171,000	12,000	260,000
1921-22	64,064	15,380	43,897	5,075	128,398
1922-23	65,000	16,650	99,240	11,790	192,680
1923-24	65,000	17,248	141,430	14,790	238,468
1924-25	68,250	18,000	120,000	15,000	221,250
1925-26	75,000	18,000	92,000	12,000	197,000
1926-27	72,000	17,000	88,000	10,000	187,000
Total, 7 years	471,314	117,278	755,567	80,655	1,424,796
Average	67,317	16,754	107,938	11,572	203,542

The figures show that Rio Grande do Sul produces about half, but that State is not important as an exporter of maté. During the past five years Brazilian exports have averaged 87,486.9 metric tons having an average value of $106,909,130. Out of the average crop of 203,542 tons, 42 per cent is exported and 58 per cent is consumed in the country.

The following table shows the destination of practically all the maté exported from Brazil.

Exports of Brazilian maté in metric tons

Year	To Argentina	To Uruguay	To Chile	To others	Total
1920	68,907	18,475	3,221	81	90,686
1921	47,726	21,118	2,992	61	71,898
1922	62,073	16,041	4,173	58	82,346
1923	63,018	20,005	4,507	117	87,647
1924	57,860	16,992	3,760	137	78,750
1925	65,635	15,938	5,090	90	86,755
1926	68,559	18,159	5,623	315	92,657
1927	68,870	17,524	4,640	57	91,092

An account of the maté industry in Brazil would not be complete without some mention of the Maté Laranjeira, the usual designation of the Argentine company which exploits the great maté forests of Matto Grosso. In 1882 Thomas Laranjeira, a Brazilian, obtained his first concession for the maté forests in the southeastern corner of Matto Grosso, which since the earliest colonial times has been famous for the quality of the maté there produced. Under various names, the same concern has retained the concession ever since, the

present concessionaire being known as the Empreza Maté Laranjeira (Inc.), with headquarters in Buenos Aires. The present contract, which will expire on December 31, 1937, covers about 7,300 square miles. The company pays an annual rent of $57,000 plus an export tax on a minimum annual exportation of 7,000 metric tons, thus producing a total minimum annual payment of the company to the State of Matto Grosso of $113,000. The company has about $5,000,000 invested in the State of Matto Grosso and employs approximately 5,000 Paraguayan laborers in harvesting and transporting the maté. The company operates its own river steamers on the western tributaries of the Parana, which afford transportation routes thru the rented area. Practically all the maté is exported via the Parana River, and the company owns and operates its own railway, 37 miles long, around the great Sete Quedas Falls on the western border of Parana. The maté so exported is in the crude (cancheada) form for elaboration in the company's factories in Argentina.

THE COLUMBUS MEETING OF THE NATIONAL COUNCIL OF GEOGRAPHY TEACHERS

The annual meeting of the National Council of Geography Teachers was held at Ohio State University, Columbus, December 27 and 28, 1929. A program of unusual merit was presented dealing with problems and investigations in the field of geographic education. Especially interesting and stimulating were the papers and discussions centered around the contents of the introductory college course in geography. Dr. Vernor C. Finch, University of Wisconsin, and Dr. Preston E. James, University of Michigan presented their views of such a course for the Liberal Arts College; Dr. J. Orchard, Columbia University, for the School of Business; Professor B. H. Schockel, State Teachers College, Terre Haute, Indiana, for the Teachers College. These papers will be published in subsequent numbers of the JOURNAL.

How shall one approach the making of a geography curriculum for the grades? Miss Schnorrenberg, Baltimore County Schools, Maryland, answered this question by relating the various steps taken by the curriculum makers of Baltimore County. They solicit ideas from all classroom teachers with the hope of arousing their interest in the content of geography and the methods of teaching it.

Teachers are urged to take summer geography courses at various institutions and then on their return pool their gleanings for the benefit of all. Every teacher collects and organizes material on a given country, examines the best courses of study now in existence, and checks thru the use of tests, the weaknesses and needs of her own pupils. By such concerted action covering about three years, Baltimore County hopes to make a curriculum that will appeal to the teachers and at the same time fit the needs of the pupils.

In discussing the "segregation of students in geography on the basis of their qualifications," Dr. F. A. Carlson, Ohio State University, urged a segregation on the basis of pre-entrance examinations in geography. The nature of the introductory course given to each of the classes obtained by this segregation is then governed in part by the student's previous knowledge of geography.

In his investigations to account for the tobacco culture of the Connecticut Valley, Dr. Albert La Fleur, Ball Teachers College, Muncie, Indiana, found that soil plays the most important part in the distribution of the acreage and the quality of the leaf. The terraces with the sandiest loam produce tobacco of the highest quality for cigar wrappers. Heavy fertilizing, however, often to the extent of almost $200 per acre, is necessary to maintain this quality. None of the lands are close to Long Island Sound because the salt in the air is injurious to the leaf, even traces of salt in the fertilizer are harmful. The quality of the leaf is further enhanced when the crop is grown under shade. Finally, in proportion to their skill in effecting a perfect natural cure for the leaf in the nearby sheds, the farmers are awarded with a cigar leaf superior in quality to any now grown in this country. Not all the land in the Connecticut lowland which can be used for tobacco production is now being used. Even so, tobacco is the second most valuable cultivated crop in New England. Dr. La Fleur believes that in general the future of the farmers in this region depends upon their ability to control marketing agencies.

According to Professor Harry K. Hutter, Muskingum College, New Concord, Ohio, more than 80 per cent of the students attending Liberal Arts colleges can take courses in geography if they so desire. This statement is based on an investigation covering 517 institutions, 377 of which offer geography. The courses per school ranged from 0 to 51, with a total of 1,578 courses and a total of 4,721 hours of credit where credit could be determined.

After two full college years spent in visiting and observing the work in four great cities and 22 colleges and universities in the Mississippi Valley, Dr. J. Stanley Brown, formerly President of the Northern Illinois State Teachers College, De Kalb, concludes that there is a tendency to reduce the total time given to geography in the elementary school; in a few places an effort is made to fuse geography with two or three other subjects much to the detriment of geography; in the main teachers of geography have meager preparation for their work even when they have met the requirement for graduation in teachers colleges; there is need of a geography requirement for all grades from the first to the ninth; the place of geography, its content and method must be determined by geography teachers, not by some department of education.

The American Academy of Political and Social Science was founded in Philadelphia in 1889. Membership is open to anyone interested "in its policy of directing and stimulating observation and reflection on problems of everyday experiences, in order that a more enlightened and intelligent citizenry might eventually function as a molder of sane and scientific public opinion on the vital questions of the hour." Its official organ is the Annals published six times annually. Dr. Henry F. James, University of Pennsylvania, believes that the aim of the Academy and the aims of geography have much in common, and that a geographic background does much to help clarify some of today's political, social, and economic problems. He urges geographers to avail themselves of the Annals as a medium for the dissemination of some of their interpretations of world problems. One of this year's Annals will deal with China. Other problems which should interest geographers deal with the independence of the Philippines, our internal waterways, and farm relief.

More than 85 per cent of all the state teachers colleges of the United States were surveyed by Dr. Floyd Cunningham, State Teachers College, Florence, Alabama, in the attempt to find the status of geography in the state teachers colleges in the United States. He examined 994 courses classified under various headings. The following courses comprise almost 80 per cent of all those generally cataloged in the geography department: Method Courses, 12.3 per cent; Economic, Commercial, and Industrial Geography, 10.5 per cent; Principles of Geography, 9.6 per cent; Geography of North America, 7 per cent; Physiography, 7 per cent;

Weather and Climate, 6 per cent; Geography of Europe, 5.7 per cent; Geography of South America, 5.1 per cent; Geographic Influences in American History, 5 per cent; Political Geography, 3.6 per cent; Geography of the Home State, 3.3 per cent; Conservation of Natural Resources, 2.4 per cent; Field Geography, 2 per cent. Regarding the training of the geography teachers of the state teachers colleges, 15 hold the Doctors degree, 106 the Masters degree, and 52 only the Bachelors degree.

"Problems in Training Geography Teachers" was discussed by Dr. Clyde E. Cooper, Ohio University. One of these problems is due to the fact that students enter college with little or no knowledge of geography. This is due to the fact that children begin the study of geography when they are too young to comprehend its subject matter and rarely do they continue its study in the high school. Then, too, they are often taught by untrained teachers. In Ohio only 11 per cent of the grade teachers have had special training in geography. Frequently the courses of study as well as state examinations are planned by specialists in education, not in geography. Dr. Cooper believes that the solution of this problem lies in interesting state boards and superintendents in the subject of geography so that they will demand of their teachers an adequate training in modern geography. Other problems are in the college itself. Unless the students actually major in geography they crowd in so many other courses that little or no time is left for geography. Then, too, college students frequently do not discover geography until they are juniors or seniors, and hence fail to get adequate geography training for lack of time. Were there more high school geography courses, the students on entrance to college might so plan their college courses that geography courses would be distributed thruout their four years of college. Finally, tho the elementary grades are well supplied with texts, those for junior and senior high schools are lacking or inadequate. The college, too, lacks texts on Europe, Asia, and teaching methods.

Other papers presented at the meetings which will appear in forthcoming numbers of the JOURNAL are—Geographic Knowledge Essential in the Business World Today by Dr. Helen M. Strong, U. S. Department of Commerce; The Possibilities of Pan-Europe by Dr. Samuel Van Valkenburg, College of the City of Detroit; "Geographic Significance of Proposed Calendar Changes." Report of Special Committee by Professor G. E. Harding, State

Teachers College, California, Pennsylvania, Chairman; A Statistical Study of Correlation of Geography and American History in the High Schools of the U.S., Professor Earl E. Lackey, University of Nebraska.

Many of those in attendance at the Council meetings remained an extra day for a field study of Columbus and its environs, under the direction of Dr. Roderick Peattie, Ohio State University. Others stayed for the meetings of the Association of American Geographers held on December 30, 31 and January 1.

The President, Dr. Nels Bengtson, University of Nebraska, began and ended the meetings on time and dispatched the business of the Council in the interims between meetings. The meetings were well attended. The geography staff of Ohio State University was untiring in its efforts to make provision for the convenience and comforts of its guests. It is hoped that Council members will begin to plan early to attend the next annual meeting of the Council.

CORA P. SLETTEN
Assistant Editor

Business Meetings

The Committee on Resolutions presented the following report which was adopted.

1. *Resolved:* That the National Council of Geography Teachers is grateful to the Ohio State University, the Department of Geography, and the Director of the Ohio Archaeological and Historical Society for the excellent accommodation so generously provided for their annual meeting.

2. *Resolved:* That the National Council is also grateful for the address given by Dr. H. C. Shetrone, Director of the Museum.

3. *Resolved:* That the National Council expresses its appreciation of the personal courtesy extended by Professor C. C. Huntington in the form of an excellent luncheon.

4. *Resolved:* That the National Council expresses its thanks to the Columbus Chamber of Commerce for the specially prepared booklet titled, "Columbus, Ohio—An Analysis of a City's Development."

INA C. ROBERTSON
S. S. VISHER
W. G. BISHOP

The following business was transacted at the meetings of the Board of Directors and Executive Committee, December 27-28, 1929.

1. The Nominating Committee, consisting of W. R. McConnell, L. O. Packard, and Cora P. Sletten, presented its report and the following officers were elected.

President, De Forest Stull, Teachers College, New York City

First Vice President and Treasurer, Douglas C. Ridgley, Clark University, Worcester, Massachusetts

Secretary, E. E. Lackey, Univerity of Nebraska, Lincoln

Members of Executive Committee, terms to expire December, 1933: N. A. Bengtson, University of Nebraska, Lincoln; Alice Foster, University of Chicago; R. M. Brown, Rhode Island College of Education, Providence.

Directors at Large: Mendel E. Branom, Harris Teachers College, St. Louis, Missouri; Fred J. Breeze, Ball Teachers College, Muncie, Indiana; C. E. Cooper, Ohio University, Athens, Ohio; Erna Grassmuck, State Teachers College, Indiana, Pennsylvania; Clare Symonds, Senior High School, Quincy, Illinois.

2. A honorium of fifty dollars a year was granted to the Secretary.

3. The Committee on Tentative Standards of Attainment for Geography in the First Six Grades was discharged.

4. In response to a communication from Dr. W. C. Bagley the following resolution was adopted:

Resolved: That the Secretary of the National Council of Geography Teachers be authorized to ask the Board of Directors of the Society for the Scientific Study of Education to devote the 1932, 1933, or 1934 Yearbook—preferably 1933—to geography, and to this end the cordial support of the National Council be pledged.

5. The President was authorized to appoint a committee to formulate suggestions for the proposed Yearbook of the Society for the Scientific Study of Education and transmit them to Dr. W. C. Bagley.

6. The proposed revision of the calendar so as to provide thirteen months of uniform length was endorsed.

7. The following by-law was adopted to replace the present one dealing with the JOURNAL OF GEOGRAPHY.

The JOURNAL OF GEOGRAPHY shall be administered by a Managing Editor appointed by the Executive Committee with whom said committee shall act as an advisory board. The Managing Editor shall have authority over all business and editorial affairs, except that contracts for publication shall be approved and signed by the Presi-

dent of the National Council. He shall be *ex officio* a member of the Board of Directors and Executive Committee of the National Council.

8. The Executive Committee authorized the publication of the first section of the committee report on senior high school geography and the committee was discharged.

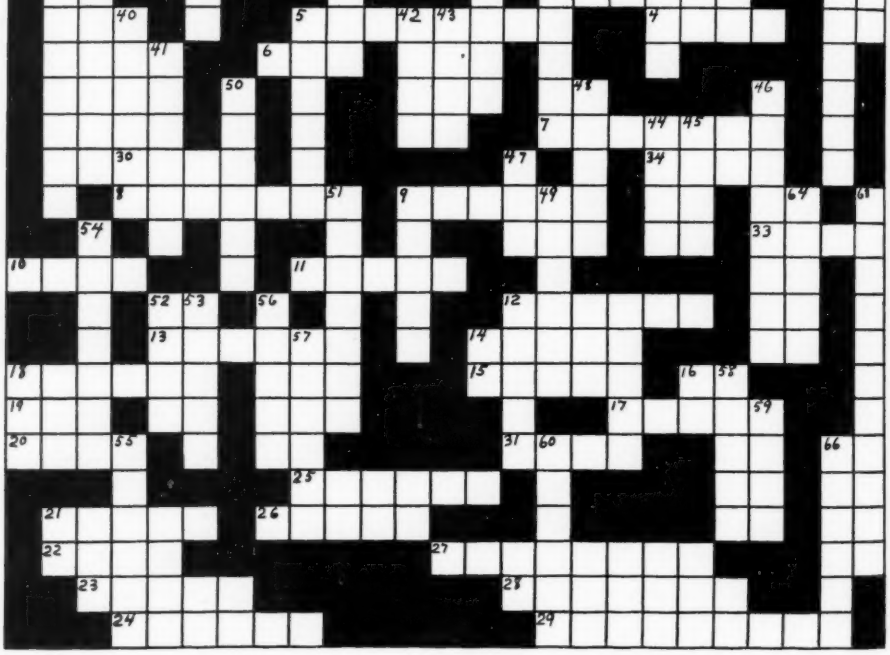
The President was authorized to appoint a committee to prepare a similar suggestive course of study in economic geography for the senior high school.

9. The Executive Committee authorized the publication and distribution of the series of addresses dealing with the introductory college course in geography presented at the meeting of the National Council provided the expense was not excessive. Publication was left with the Editor of the JOURNAL for final decision.

GEORGE J. MILLER
Secretary

AN INTEREST-STIMULATING DEVICE

Cross Word Puzzle on Asia



READING ACROSS

1. Important port of southern China
2. Seaport of Syria
3. River in Indo China Peninsula
4. A kind of goat
5. Chief mountains
6. A product of China
7. A river in Siberia
8. River of China
9. A large crocodile of India
10. Gulf south of Persia
11. Country north of India under British protection
12. Lake in Siberia
13. Continent west of Asia
14. Capital of India
15. Evergreen forests of Siberia
16. River of Siberia
17. River of India
18. Plateau of southern India
19. Ox of Tibet
20. Mountains between Europe and Asia
21. City in Siberia
22. Desert of China
23. Chief city of Hedjaz
24. Product of Malay Peninsula
25. Ocean south of Asia
26. System that prevents progress in India
27. Chief city of Burma
28. Animal used for work
29. Important seaport on Malay Peninsula
30. Gulf south of Arabia
31. Ruler of Persia
32. A sea east of Siberia
33. A desert in India
34. A very important crop thruout eastern Asia

READING DOWN

1. Seaport of India
3. Most southern peninsula of Asia
5. Country bordering Red Sea
9. Mountains of southern India
35. A name given to the land where Jerusalem is located
36. Peninsula of southern Asia
37. Canal in China
38. Mineral found near Caspian Sea
39. Peninsula of southwestern Asia
40. Seaport of India
41. An ancient city on Tigris River
42. A river between China and Siberia
43. A river of Siberia
44. Another name for Mesopotamia
45. A country southeast of Burma
46. Seaport of China
47. Product of Malay Peninsula
48. Animals found in the sea
49. A large wild sheep
50. Chief river of India
51. Highest peak in the world
52. Sea in the Holy Land
53. Sailboats of China
54. Strait between the mainland and Sumatra
55. Product of Burma
56. Chief city of Japan
57. Country of southwestern Asia
58. Part of India occupying Indo China Peninsula
59. Product of Japan
60. People of India
61. An important port city of China
62. An industrial city of Japan
63. A large river in India
64. A sacred city in Tibet
65. A city in French Indo China
66. A state in India

MARY BAIRD CASTOR
Horace Mann School
Gary, Indiana

EDITORIAL NOTES AND NEWS

Does America own land that is governed by other Nationals? Turtle and Mangsee islands, belonging to the Philippine Archipelago, located off the coast of North Borneo are governed by the British North Borneo Company under a convention signed recently by the British and American governments. The population of the islands is about 200 and copra and turtle eggs are principal products.

During the past three years the Transandine Railway between Argentina and Chile has experienced interruptions to traffic only 61 days (11 months of 1929 only included). Five-sixths of this time was due to the heavy snows.

The period since the World War has been a veritable "Epoch of Name-Changing." This was to be expected in areas that changed sovereignty but the movement has extended to other countries as well. In Norway, Trondhjem has become Nidaros; Christiania, Oslo; Frederikshald, Holden, and proposals have been made to change Christiansund to Fosua. These changes are made to eliminate the Danish names which were established when Denmark ruled Norway.

Adoption of the new phonetic orthography in Turkey entailed respelling of its place names. The following are some of the principal towns as now spelled; Constantinople to Istanbul; Smyrna to Izmir; Angora to Ankara; Samsoun to Samsun; Brusa to Bursa; Trebizond to Trabzon; Scutari to Üsküdar.

China has added another change to the many already made. The province of Fengtien is now Liaoning Province. It is also probable that the district of Harbin will become Harbin Province.

Preliminary reports of the U. S. Geological Survey indicate that the mineral production of Alaska for 1929 will exceed $16,100,000. Gold ranks first and copper second with estimated values of $7,748,000, $7,233,000 respectively, thus contributing more than nine-tenths of the total.

During 1929 Rouen became the leading maritime port of France exceeding Marseilles in tonnage.

The passenger fare on the London-Paris airliners is now less than the first-class train and boat fare. One may travel by air between these two cities for approximately $17.00.

Commerce Reports, December 23, 1929, presents a summary of an intensive study of "Ocean Routes in United States Foreign Trade" invaluable to every teacher of economic geography. The data are for 1928 and the following are a few of the striking points presented. Exports thru the North Atlantic District constitute 28 per cent of the tonnage of our total trade (exports and imports combined) and imports constitute 30.2 per cent; the Gulf, Pacific, and South Atlantic districts rank next in order; on the tonnage basis our most important trade route is between the North Atlantic District and Central America, the West Indies, and the north coast of South America, which handles 12.4 per cent; the second route is between the North Atlantic District and the Havre-Hamburg range, with 11 per cent; 31.5 per cent of the tonnage of our ocean-borne foreign trade was carried in American ships. Tankers are excluded from all preceding figures. Data are also given in value, as well as several grafs, and maps of the foreign trade regions.

According to the September, 1929 issue of the British Chamber of Commerce *Bulletin* of São Paulo, there are 6 million young orange trees in the State of São Paulo which should be yielding 6 million boxes of fruit within the next 5 years. The total exports from the state in 1929 probably totaled one-half million boxes. Various cooperative societies have been organized and the state is seeking to aid the export trade. Some British capital, too, is promoting the orange industry. The export season lasts from April to November. Other Brazilian states stimulated to production by British prices of oranges are Rio de Janeiro, Minas Geraes, and Rio Grande do Sul.

The United States Geological Survey has recently issued a new report, "Land Classification in the Northern Great Plains Area." This report consists of a text and eight land classification maps. The maps show the location of irrigated crop lands, dry-farming lands, and grazing lands. The text discusses these land types by counties, giving information concerning the present and potential use of the lands. The report has been compiled in connection with a plan for an atlas of agriculture, the publication of which is being contemplated by the Bureau of Agricultural Economics. The cost of each map with its accompanying mimeographed text is 50 cents, or $3.00 for the entire set, obtainable from the U. S. Geological Survey, Washington, D.C.

One of the most pathetic sights in our arid and semiarid West is the abandoned shack of a homesteader. Nearby is usually the remains of what was once a well, or an old stone-boat on which the water had been laboriously hauled from a distant supply. The history back of the land-seeking movement in such places is nearly always the same. In most cases the land had been offered for sale cheap to homesteaders, who staked their claims on the hopes of finding the underground water sufficient for dry farming, or that irrigation would supply the deficiency. Millions of dollars have been wasted in trying to utilize such lands. The waste and mental anguish over failure continues, for each year prospective homesteaders settle on lands that cannot possibly yield a living. In order to direct people to a wiser choice of such lands, the U. S. Geological Survey together with the help of the Department of Agriculture has undertaken a classification of these lands on the basis of their suitability for grazing, for mineral production, for crop production with or without irrigation, or their uselessness. Previous mention of these surveys has been made in the JOURNAL. One such survey has just been completed in the Mohave Desert. The report of it may be obtained from the Supt. of Documents, Washington, D.C. The title is "The Mohave Desert Region, California, A Geographic, Geologic and Hydrologic Reconnaissance," by David G. Thompson. It covers 750 pages, contains numerous maps, and costs $2.00.

Once every 25 years Columbia University celebrates a quarter century of growth and influence. At such times honorary degrees are conferred upon various distinguished members of the teaching staff. At the last celebration, the degree of Doctor of Science was conferred upon J. Russell Smith, Economic Geographer.

The Bulletin of the Nebraska Chapter of the National Council of Geography Teachers, Vol. IV, No. 2, contains some helpful suggestions for geography games, sand tables, and other projects and activities. The material in this number was assembled by A. B. Clayburn, State Teachers College, Peru, Nebraska.

Spitzbergen has the most northerly coal mine in the world. It is operated by a Norwegian company and is about 600 miles from the northern Norwegian ports. It is estimated that about 200,000 tons will be produced in 1929, and that the coal reserves are approximately 8 billion tons. The short shipping season of only three months is a handicap to profitable development.

During the past six years commercial aviation has penetrated the interior of Siam, connecting some of the provinces hitherto almost inaccessible due to lack of highways and railways. The air lines carry mail, merchandise, and passengers. Thus far none of the 3,697 passengers carried have met with an accident.

This fall officers of the American Telephone and Telegraph Companies talked thru regular telephone instruments with the Sydney, Australia, operators, a distance of 15,000 miles. The call passed over wire lines from New York City to Lawrenceville, New Jersey, thence by radio to the Baldock receiving station near London, thence by wire to Rugby and again by radio to Sydney. The conversation occurred at 4:00 P.M., September 25, New York time. What was the corresponding hour and date at Sydney?

GEOGRAPHICAL PUBLICATIONS

Elizabeth Kneipple Van Duesen: **Tales of Borenquen.** 294 pp. 1 map, 32 illustrations, 1928; **Tropical Tales.** 240 pp. 1 map, 45 illustrations, 1929. Silver, Burdett & Company, Newark, N.J.

C. L. Hanson and W. J. Gross: **Travel Sketches of Today.** 325 pp. 25 illustrations. Ginn & Co., New York, N.Y.

As special supervisor of English in San Juan, Porto Rico, Mrs. Van Duesen has written many tales and poems to be used in the junior high school grades. Her tales deal with present-day life and with historic events and people of this interesting island. Her stories are charming as well as authentic. No geography text can give so friendly and intimate a picture of our Porto Rico as is contained in these books. Is it asking too much to ask that every child studying the geography of Porto Rico, or that period in our history when Porto Rico became a part of our territory, shall read some of these tales and poems? It would be an agreeable and easy way to develop an understanding and friendly interest.

Twenty-two well known and liked authors are represented by the group of extracts in "Travel Sketches of Today." The sketches are well chosen as examples of interesting travel literature. However, only a few are adapted to the junior high school grades.

State Teachers College AMY E. WARE
Salem, Massachusetts

E. Dudley Stamp. **A General Geography.** 676 pages, 404 photos, drawings, and uncolored maps, and 10 colored maps. Longmans, Green and Co., New York. 1929

This book was originally written for high school students in India whose mother tongue was not English, but it has been used by students in the British possessions of Australia, Africa, and elsewhere. The author has tried to eliminate technical terms and long words which have practically no meaning to a young student, and he has succeeded in doing this very well. The book is written in an interesting manner and it is rather easy to read. Moreover, much stress is laid upon simple, uncolored sketch maps, each one

of which tells a story. One good thing about each map is that it does not attempt to show everything, but it illustrates only those facts which it is drawn to illustrate. Many authors often put too much in a map, thereby making it unreadable. There are a number of excellent diagrams and grafs which help to make the reading material clearer.

The book is divided into Part I, General Physical and World Geography; and Part II, Regional Geography. Part I covers a little more than one-fourth of the book and the chief facts of physical geography are developed. In Part II, the geography of the countries of each continent is briefly discussed. As would be expected in a textbook written chiefly for English students and for students in India, the British Isles and India receive much more attention than any other region. Numerous questions and exercises are distributed thruout the book. In the Appendix there are a number of questions, which are taken mainly from public examination papers.

Chicago Normal College FREDERICK K. BRANOM

Alfred Weber. **Theory of the Location of Industries.** 252 pp. Edited, translated, introduced and annotated by Carl Joachim Friedrich. University of Chicago Press, Chicago. 1929.

"Industries" as defined in this book means manufactures. The "Theory of Location" is the reduction of the critical locative factors to a mathematical formula. The editor lucidly orients this theory with the trends of pure economic theory by sketching briefly the outstanding contributions of economists who have shown interest in the problems of localization of economic activities.

Alfred Weber analyzes production, distribution, and consumption processes for the purpose of attaching to the phases of each a numerical value, which he labels "indices" or "coefficients." His procedure is rigorous adherence to a step by step plan of discussion leading from pure theory to applied economic theory and then to type cases and "deviation" cases. The major plan of the book is reflected in the chapter headings as follows: Locational Factors, Transport Orientation, Labor Orientation, Agglomeration, Total Orientation, Manufacturing Industry Within the Economic Theory, and Manufacturing Industry.

Weber's theory has significant contributions to geography. First, it provides a technique for studying locational problems which offers a method of procedure even tho the lack of numerical data may preclude the solution of the formula in many instances. Second, incidentally perhaps, there is presented an array of technical terms for geographic concepts, such as; "index of materials," "isodaphanes," "locational factors," "locational units," "absolute ubiquities," "relative ubiquities," "agglomeration," "function of economy," and "coefficient of manufacturers." Third, the crux of Weber's theory is the use of Varigon's force table solution for the resultant of locational index or coefficient forces in environment. Fourth, the book outlines an analysis and coordination of the "strata of locational distribution." "Fifth, it suggests the possibility of finding a mathematical value for stages of sequent occupance. Sixth, there is a general attempt in all of the above contributions to give "yardstick" concepts to the more or less vague notions of values of factors of environment.

Washington University,
St. Louis, Missouri LEWIS F. THOMAS

R. H. Whitbeck. **High School Geography.** 574 pp. 385 photos, maps, and diagrams. The Macmillan Co., N.Y. 1929. $2.00

Whitbeck's High School Geography is, I believe, unique in its plan of organization, for it is neither a physical geography nor a commercial geography, but an interweaving of the two. In his preface Mr. Whitbeck says that until a few years ago the geography

of the secondary schools was of either one kind or the other, "but thus to separate the two is to rob each of its complement."

With this as his creed, the author presents chapters on all the topics usually discussed in physical geographies. To say that they are scientifically sound is entirely unnecessary. Furthermore, the language is simple, clear, and interesting, and the illustrations are abundant and well selected. In these respects the book is not essentially different from others which might be mentioned, but the unusual feature is the interspersion at appropriate places of chapters dealing with topics common to commercial geographies. For example, The Materials of the Earth's Crust is followed by Mineral Resources and Industries of United States; Rock Weathering and Soil, by Agriculture in the United States, in which last-named chapter there is a brief discussion of our farming regions and of each of our important crops. Of the twenty chapters of Book I, thirteen are pure physical geography, humanized after the accepted modern fashion, and seven have to do with the products and the occupations of the people of United States.

The last quarter of the book deals with Latin America, the British Empire, Continental Europe, Japan, and China. In each case the physical conditions are first described, and then follows a discussion of human activities as influenced by these conditions.

There are eight excellent political maps, in color, besides a large number of very clear product, rainfall, and other special maps. One cannot but feel that Mr. Whitbeck has spared no pains to make his book accurate, complete, and in line with the most advanced thought.

FRANCES S. HAY

Business High School
Washington, D.C.

Loomis Havemeyer. **Ethnography.** 522 pp. 227 photos, 3 maps. Ginn and Co., Boston. 1929

This book, by an assistant professor of Anthropology in Yale University, deals chiefly with rather primitive peoples. Nearly a third of the book is devoted to the "Black Race" and two fifths (200 pages) to the "Red Race." The "Brown" and "Yellow" races receive about 40 pages each, and the White Race, represented by the Hindus, 30 pages.

Havemeyer's Ethnography deals rather fully with representative primitive peoples. Most of the book consists of reprinted excerpts, or abstracts, from the writings of anthropologists who studied the tribes, in many cases two or three generations ago. For the Aztecs and Incas, however, the accounts are based on the partial knowledge gathered at or soon after the Spanish Conquest, four hundred years ago. The illustrations are chiefly close-ups of the people, their dwellings, and implements, and were largely supplied by anthropological museums. They are excellent.

The characteristics discussed for most tribes are their physical features, character, history, language, self-maintenance, dwellings, marriage, family life, ornaments, body decorations, art, amusements, religion, especially beliefs as to the future life, government. For each tribe there is given also a brief, often quite inadequate, paragraph on the environment. Three sketch maps show the distribution of most of the tribes discussed, and, for North America, of all of the Indian tribes.

Undoubtedly Havemeyer's Ethnography would be examined and partly read eagerly by many of our youths taking geography. Such persons would thereby become better acquainted with certain primitive peoples, and hence with certain areas. But it makes little or no effort to increase the understanding of the people in the light of their environment. Indeed it appears that Dr. Havemeyer, and the anthropologists he quotes,

are interested in the peculiarities of peoples rather than in attempting to understand them. The detailed descriptions of cruelty, stupidity, squalor, etc., give an incomplete picture which powerfully tends to increase unfriendliness towards the peoples described. Personal contacts with members of several of the tribes described have led the reviewer to realize that the differences between these people and ourselves are far less than the resemblances, and many of their traits are admirable. When proper allowance is made for environmental influences, personal acquaintance with them normally increases one's respect for them. Yet this book, which is intended as a substitute for such personal acquaintance, does not produce that effect, because of its emphasis on peculiarities, and characteristics which we consider undesirable.

Despite these criticisms, Havemeyer's Ethnography is an interesting, illuminating, book which will make more vivid the reader's knowledge of the parts of the world dealt with, and which will increase his appreciation of modern America.

Indiana University S. S. VISHER

Eugene Van Cleef. **The Story of the Weather.** 274 pp. Illustrated. The Century Company, N.Y. 1929. $2.50

The book is essentially a compilation of interesting weather facts, with varying qualities of explanatory material. Beginning with a rather heterogeneous body of introductory facts serving as a background for later discussion, there follow chapters dealing with atmospheric moisture, clouds, aperiodic storms, wind, weather forecasting, weather lore, seasons. The concluding chapters following those just enumerated deal mainly with the practical aspects of weather as related to man's economic and social life. Weather and radio static conditions are treated in some detail. Temperature is not treated in a separate chapter.

The book is meant to be a popular treatment to intrigue the interest of the general public, and it should accomplish that end. One looking for anything savoring of a systematic treatment of the subject will not find it, tho the book does suggest the existence of full scientific factual or theoretical explanations of phenomena discussed. One wonders if a more systematic treatment need have lessened the appeal of the book to the public. Such a treatment would have made the book far more useful to geography teachers at all levels of instruction.

The illustrations are excellent, but are not well located with relation to the textual material which they supplement. For example, the discussion of tornadoes is found on pages 72-77, while the picture of the tornado cloud faces page 128. There is no reference in the text to the picture.

Many popular misconceptions regarding climatic and weather changes are effectively clarified. The book fulfills a need in putting together for the general reader a wealth of authoritative weather and climatic material, in attractive word settings. To the casual reader, and to the teacher, the index makes more available the particular facts or explanations in which interest is temporarily centered.

LYNN H. HALVERSON

University of Wisconsin
Madison, Wisconsin

W. W. Atwood and Helen G. Thomas. **The Americas: The Earth and Its People.** Book II. 316 pp. 300 photos and maps. Ginn and Company, Boston. 1929. $1.40

The Americas is the second of the volumes which are to make up the "Earth and Its People" series of geographies. This series is built on the single cycle plan. Dr.

Atwood's types of natural regions form the framework of the book altho the old division, The New England States, The Middle Atlantic States, etc., is used also. Of the 288 pages of text, 243 pages are given to North America and only 65 pages to South America. This does not give sufficient space for the treatment of South America. The book contains twenty-eight full page colored maps, also a large number of small black and white maps. The pictures are numerous, large and clear-cut. Numerous airplane views have been used. The value of the pictures has been increased by the use of definite questions in the legend and in the text requiring a study of the pictures. At the close of each section checking tests and exercises have been arranged. These are of the completion and matching type. Other exercises have been provided also, such as, "some things to explain," "using new words," "planning an exhibit," and "special credit work."

This series of geographies is a great improvement over the former Atwood and Frye series.

University of Pittsburgh ZOE A. THRALLS

A CHOICE OFFERING

Would you choose the best geographical material if you could? *You may!* It depends upon you alone. Just note how helpful this number of the JOURNAL will be to you. You may have nine such numbers every school year. We are just beginning an epoch making series of articles in the field of human geography. You just can't afford to miss the JOURNAL. *We hereby extend to you an invitation to become a member of the National Council of Geography Teachers and secure the* JOURNAL *at the membership rate of only $2.00 a year.*

Here are some of the things scheduled to appear:

1. A Study of the Succession of Human Activities in the Kentucky Mountains. D. H. Davis, University of Minnesota, Minneapolis.
2. Distribution of Irrigated Areas with Special Reference to Europe. W. O. Blanchard, University of Illinois, Urbana.
3. The Lower Mississippi as a Waterway, W. A. Browne, State Teachers College, Nacogdoches, Texas.
4. The Great Karoo of South Africa. Lynn H. Halverson, University of Wisconsin, Madison.
5. Reconstructing the Geography of Alabama. F. A. Carlson, Ohio State University, Columbus.
6. Geography Essentials. Helen M. Strong, Chief Geographer, U. S. Department of Commerce.
7. Report of the National Council Committee on Geography in the Senior High School.
8. Geographic Significance of Calendar Changes. G. E. Harding, State Teachers College, California, Pennsylvania.
9. Life in a Cotton Farming Community. William T. Chambers, State Teachers College, Nacogdoches, Texas.
10. The Problem of Wood Pulp and Paper. Albert G. Eldridge, State Normal School, North Adams, Massachusetts.

If you are not on our mailing list, or have neglected to renew, send your subscription *at once.* You cannot depend upon getting back numbers. Many others have been disappointed. Regular subscriptions, $2.50; to members of the National Council, $2.00 for the year.

Act now! Send your annual dues and membership application to the undersigned at once.

JOURNAL OF GEOGRAPHY,
3333 Elston Ave.,
Chicago, Ill.

Just Published!

Teacher's Manual

for the Cartocraft Globes

By L. P. DENOYER

Formerly Head of the Geography Department
LaCrosse, Wisconsin, State Normal School

A clothbound manual of 137 pages of vital, important material for the effective teaching of geography with the globe. A copy should be found within easy rea- on eve geography teacher's desk.

Whether used in conjunction with genuine D-G Cartocraft Globes, or others, this fine new work will prove a valuable "right hand" help *in driving the important facts and relations home.*

Written in an easy-to-read style, and fully indexed. Nearly 50 illustrations. Durably bound in maroon cloth. Single copies, 85 cents postpaid. In quantity, 75 cents plus transportation.

A Globe

easy and inviting to use

should be in every classroom from 4th grade to 12th

The Cartocraft High Stand Globe CG-43, illustrated, is as easily portable as the ordinary desk type (just collapse the stand and carry it). This globe may be adjusted to the ideal teaching position—one a level with the pupils' eyes. The double meridian allows the angle of tilting to be changed freely, so that the globe can be rotated with ease on every diameter, and any hemisphere can be turned to the class instantly. The patented time dial does not permanently obscure any of the polar area.

Cartocraft High Stand Globe CG143 invites *use* and offers teaching opportunities not found in other globes. In the classroom it will prove cheaper than globes offered at half its price; because of greater *usefulness* and greater *use.*

Write to

DENOYER-GEPPERT COMPANY
5235-5257 RAVENSWOOD AVENUE
CHICAGO